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composite. TGA derivative curves (DTG) using heating rate of 60C per minute revealed that the decomposition degrades in two overlapped steps which Is more significant for NaOH treated fibre

Keywords: Kenaf Fibre, Fiber treatment, thermal degradation, Temperature maximum degradation rate, UPR composite

PPM 5

✓ **Preliminary Studies of Rubber Toughened Polypropylene – Kenaf Fiber Composite**

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This project was undertaken to study about rubber toughened polypropylene-kenaf fiber composite. The composite of TPEs reinforced with kenaf fiber was prepared via melt blending method using Thermo Haake 600p internal mixer. TPEs that were used consist of blend of polypropylene (PP) and synthetic rubber (EPDM) at 50PP/50EPDM ratio. The fiber content was varied from 0-20% volume fraction. TPEs- KF composite was blended at 180°C processing temperature, 40 rpm mixing speed and 10 minutes mixing time. Maleic anhydride-grafted-polypropylene (MAPP) was added at 5% by volume fraction for composites as coupling agent. A study on mechanical properties and fracture mechanism were carried out using tensile testing, impact testing, as well as SEM examination. A tensile property for PP-EPDM-KF composite was increased with the presence of MAPP. The impact strength for PP-EPDM-KF composite was reduced with the increasing of fiber content. SEM micrograph revealed the random orientation of KF, debonding and fiber pull out aggravated the failure and lower the mechanical properties of the composite.

Keywords: Kenaf Fibre, Mechanical Properties, Thermoplastic Elastomer

PPM 6

The Effect of 3-(Trimethoxysilyl) Propyl Methacrylate on the Flexural and Fracture Toughness Properties of Poly(methyl methacrylate)/Hydroxyapatite Composites

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The objectives of this research is to investigate the effects of different concentration of 3-(trimethoxysilyl) propyl methacrylate (γ-MPS) on the flexural and fracture toughness of poly(methyl methacrylate)/hydroxyapatite (PMMA/5HA) composites. The hydroxyapatite was surface treated using 3-(trimethoxysilyl) propyl methacrylate (γ-MPS) with a different concentration based on HA (2, 4, 6, and 8%). The PMMA/5HA composites were prepared by using heat-processing polymers powder and liquid method with a ratio of 10:4 according to the dental laboratory practice. PMMA powder was mixed with a monomer of methyl methacrylate (MMA) which stabilized with hydroquinone. Benzoyl peroxide (BPO) and ethylene glycol dimethacrylate (EGDMA) were used as initiator and crosslinking agent, respectively. The chemical treatment of HA was examined using Fourier Transform Infrared Ray Spectroscopy (FTIR). The PMMA/5HA composites were characterized using 3-point bending and fracture toughness tests. FTIR results revealed that the peaks at 1386, 1448 and 1477 cm^{-1} were disappeared by the treatment of γ-MPS on HA at 8% concentration. In addition, the